ICT for Psychosocial Competence Development among Adolescents

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Abstract: Along with the technology development, teenagers get more freedom and opportunities to experience new things and people. As a result teenagers are more vulnerable for abuse and health problems in particularly for teenage pregnancy. In order to minimize this issue Health Organizations have started conducting workshops with the intention of empowering teenagers with knowledge, attitude and safety skills required to prevent pregnancy. However, teenagers seem reluctant to show their interest for studying about sexuality and talk about their issues openly. Therefore, health organizations emphasize the importance of identifying an innovative and personalized strategy to develop psychosocial competencies in teenagers. Since information and communication technology has proven to bring benefits for education, the present study investigated how ICT can be used to reduce the major health problem, teenage pregnancy through psychosocial competence development among teenagers. The study consisted of a literature review and two focus group interviews. The findings imply that video, game and discussion are considered as suitable instructional methods to deliver eLearning content in an effective way. Based on the findings this paper discusses how ICT based interventions should be designed to support adolescents to develop their psychosocial competencies.

Keywords: Psychosocial competency, Teenage pregnancy

Introduction

Teenagers are the most valuable asset in a country. About one fifth (1/5) of world population are teenagers [2]. However, according to World Health Organization (WHO) hundreds of teenagers get infected with HIV every week [3] and according to the United Nations Populations Fund [1] adolescents have experience in limited and incomplete knowledge on sexual and reproductive health, a small percentage of adolescents have experienced pre marital sex, unprotected sex with sex workers and about 6% of adolescent girls in ages between 15-19 had a baby or were pregnant. Therefore health organizations [1] have taken initiatives to improve quality and access to youth friendly health programs and services. These initiatives aim to build health workforce capacity to effectively and efficiently respond youth health issues and to [4] expand and strengthen physical and mental health including sexual and reproductive health education of adolescents at school level. According to The United Nations Children's Fund (UNICEF) [8] psychosocial competencies are essential for adolescents to face challenges effectively that meet in their day to day life [1]. World Health Organization [1] has also state that psychosocial competencies and attitudes are more important than knowledge for adolescents to face day to day problems.

A study conducted by Botvin et al. [5], LaFromboise et al. [40] and Stein et al. [6] signifies that psychosocial competencies are a major component in reducing adolescents' health problems. Further the United Nations Populations Fund (UNFPA) [1] has identified that empowering psychosocial competencies as a behaviour change communication strategy in order to adopt and maintain the desirable behaviours among adolescents in the area of sexual and reproductive health. Based on their findings UNFPA [3] that use of ICT based intervention to develop psychosocial competencies among adolescents' will be more beneficial than a traditional intervention. ICT has rapidly been brought to use in various areas [8] including teaching and learning. Moreover, it has been globally accepted as a component of education. Online interventions can be accessed by all learners at the anytime irrespective of their locations. Also it will be a solution for the problem

of addressing individual learning differences and time limitation to conduct the psychosocial competencies development programs at school level.

However, it is not clear how ICT should be used to develop psychosocial competencies in teenagers. Therefore present study aimed to answer "How can ICT be used to support development of psychosocial competencies in teenagers?".

Methodology

The study consisted of two major phases: a literature review and two focus group interviews. The literature review was conducted by analyzing more than forty (40) research papers which included Twenty five (25) conference papers and Twelve (12) journal papers. Also we referred to several magazines and reports published by World Health Organization [3][2][4]. The papers and magazines were retrieved from Google Scholar, Science Direct, Web of Science, and ACM Digital library by using search text such as "teenage pregnancy" + ICT, "psychosocial competency development"+ ICT, "life skills" + ICT , "psychosocial competencies intervention" +ICT, "adolescents' reproductive health"+ ICT.

The content of the relevant research papers about interventions of proven effectiveness were further analyzed to find ICT based pedagogical approaches or technologies used to develop psychosocial competencies in teenagers.

The findings of this literature review were triangulated with two focus group interviews conducted with a group of female adolescents having regular contacts with the Ministry of Health Sri Lanka. The sample group consisted of 10 adolescents' ages between 15and 19 and they were selected upon their consent for participating in the study.

The interviews were guided by a set of questions prepared based on the data gathered from professional student counsellors and some medical reports at the Ministry of Health, Sri Lanka. Prior to use, the questionnaire was reviewed by a professional counsellor and it was used to gather data at the interviews under his guidance. The data collected through the focus group interviews were analysed quantitatively and qualitatively.

Analysis and Results

The sample of papers collected for the literature review were analyzed and categorized based on different instructional methods and technologies used to develop ICT-based learning interventions (see Table 3.1).

Table 3.1: Instructional methods, technologies and examples

Instructional method	Technology	Example
Video	Video sharing sites	Teensource.org [9]
	Vodcasts	The Midwest Teen Sex Show [10]
Game	Online game	RePlay: Finding Zoe [11]
		Serious digital games like Prepare, The Romance Game, SISTAS, and It's Your Game [12]
Images and text	Web sites	Youthline at http://www.youthline.ca
		QYouth Resource at http://qyouthresources.org/
		WebMD at http://www.webmd.com
		Sex,etc at https://sexetc.org/
Audio	Podcasts	Sex Really: The Show [13]

		Podcasts at CDC [9]
		Planned Parenthood Online’s Speaking of Sex [14]
Discussion (Q&A)	Short Message Service (SMS) technology	Mobile for Reproductive Health (m4RH) [15]
		SexINFO [16]
		Hookup [17]
	Web-based social networking sites (SnSs)	Health promoting activities using MySpace, Facebook, Twitter

The above described primary analysis of literature implied that there are five main technologies mostly used for developing psychosocial competencies in adolescents. They are SMS technology, SnSs, video-sharing web sites, podcasts and online games. These technologies have been mostly used to deliver instructions based on discussion, video, audio and games.

The literature reporting about these technologies were further analyzed to identify the most suitable technology that can be used to develop an intervention aiming to support development of psychosocial competencies in adolescents. The findings of this further analysis are showing in Table 3.2.

Table 3.2: Comparison of instructional methods and technologies

Instructional method		Discussion	Video	Audio	Game
	Technologies	SnSs	Video sharing sites	Podcasts	Online game
Discussion	SMS	Studies showed that SnSs is more efficient than SMS in reproductive health education among adolescents[21]	Studies showed that 57% of online adolescents watched the videos posted on the video sharing sites and stated that this is effective than text messaging to deliver reproductive health education [23] [22]	Studies showed that text messaging is more efficient than podcasts for reproductive health education [24]	Interventions showed that 99% of adolescent boys and 94% of adolescent girls like to play online games than using text messages [35][26].

	SnSs	-	As videos can be shared using SnSs, the SnSs are more effective than video only sharing sites for reproductive health education [27]	Interventions reported that only 19% of online adolescents tends to download podcasts and SnSs are more effective for reproductive health education [28]	Studies showed that playing games over and over again can change adolescents' behaviour [29] over other technologies and found 65% of boys and 35% girls play games daily [30]. As well as studies showed that Most adolescents like to play video/online games for reproductive health education than using other methods as it is comfortable, personal and interactive [31]
Video	Video sharing sites	-	-	Studies showed that 14% of online adolescents uploaded a video file to a sharing site and 39% of online adolescents shared their own artistic creations on video sharing sites like YouTube than using podcasts. Therefore video sharing sites are more efficient than podcasts[32] [33]	Studies showed that 99% of adolescent boys and 94% of adolescent girls like to play online games and only 57% of online adolescents watched the videos posted on the video sharing sites. Therefore online games are more effective than video sharing sites [34][35]
Audio	Podcasts	-	-	-	Studies showed that online games are more effective than podcasts regarding to Reproductive health education as only 19% of online adolescents tends to use podcasts.[36]

The findings of the literature review implied that video, game and discussion were the most effective instructional methods to deliver an online content (See Table 3.2).

Findings from the focus group discussion

Further a focus group discussion was conducted with a group of female adolescents to know their perception regarding the instructional methods. 80% of them expressed their willingness to study through online games and all informed that they would like to learn through videos (see Table 4.1).

Table 4.1: Preference for instructional methods

Instructional	Preference
Video	100%
Game	80%
Image and	40%
Audio	30%
Discussion	100%

Based on the findings of the focus group interviews, an online learning intervention was designed to support adolescents to develop their psychosocial competencies.

Implications for design of online platform

The following flow charts (See Figure 4.1, 4.2 and 4.3) were designed to satisfy the requirements of the adolescents who wish to receive support or learn about psychosocial competencies online. The requirements were identified and the expected levels of interaction were determined and based on the finding of the focus group interviews.

Further an online questionnaire was given to the adolescents to verify the design decisions taken. Based on the marks, the sample of adolescents was grouped into three categories: beginner, intermediate, and expert. Beginners are the adolescents who scored marks less than 30% and experts are the adolescents who score more than 80%. Intermediates scored in between 30% and 80% for the online questionnaire. These grouping levels were decided based on the information provided by the counselors at the Ministry of Health.

According to the information provided by the ministry, only the adolescents in the intermediate group should better be provided with an online learning content and adolescents who scored less than 30% should be immediately directed to a professional counselor for personal advice [1].

Figure 4.1.1: Major design of the online intervention

Figure 4.1.2: Design of the game

Figure 4.1.3: Design of the interface of the video

Discussion and Conclusion

The present research aimed at answering, how ICT can be used to reduce one of the major health problems, teenage pregnancy through psychosocial competence development among teenagers. According to the literature reviews psychosocial competency is a major component in reducing adolescents' reproductive health problems and emphasizes that technology used should be flexible, interactive, and fresh. Most of the above mentioned interventions used video, game and discussion methods. Further, the results on adolescents' preferences for instructional methods revealed that video, game and discussions based learning can be considered as suitable methods for designing an online learning platform to support learning psychosocial competencies. This finding complies with the result of Péter et al.[18] who reported that video based learning is more effective than traditional methods of teaching and learning. Also, game based learning has been considered effective for creating and maintaining learners' motivation throughout the lesson [19] and discussion based learning has been found as an effective method to engage learners in deep and meaningful learning [20]. Incorporating these findings of the contemporary research, the results of the present study informs that online learning environments that are designed to support adolescents developing knowledge and skills related to psychosocial competencies may better be designed with videos, games and discussions.

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